

I Claim:

1. A system for monitoring electrical power supplies, comprising:

a plurality of individual input modules each connected to a respective power source and having means to receive an analog voltage input and to convert said analog signal to a digital form;

central controller means connected to collect data from each input module and, at scheduled intervals, send that data to web server means containing primary system software capable of performing data comparisons, charting trends, predicting failures, planning and scheduling service visits, and archiving data for future reference, said software also providing near real time reports, regular monthly reports, and alarm notifications which can be sent via E-mail, telephone land lines, cell phone, PDA, or pager.

2. The system for monitoring electrical power supplies according to claim 1, wherein each said input module comprises:

DC battery lead attachment means;

AC input voltage power transformer means;

temperature thermistor means attached to each battery being monitored; and

current transformer means including AC and Hall effect DC.

3. The system for monitoring electrical power supplies according to claim 1, further comprising:

wiring harness means in each said input module means, each said battery being monitored is attached to one end of said wiring harness means the other end of which is attached to connector means of said input module, the number of wires in said wiring harness means being

one more wire than the number of batteries being monitored.

4. The system for monitoring power supplies according to claim 3, further comprising:

additional sensor means attached to said input modules through said harnesses.

5. The system for monitoring electrical power supplies according to claim 1, wherein each said:

input module is used for DC battery voltage and DC charger/bus voltage, DC amperage at the DC bus, AC input voltage sensing, and both individual battery temperature and ambient temperature sensing, the different voltage ranges and type of voltage (AC vs. DC) are programmed on system requirements.

6. The system for monitoring electrical power supplies according to claim 1, wherein said central controller comprises,

microprocessor means to collect data from said input modules, store and summarize said data, said data including: system data, power measurements, date/time stamps, and module information embedded in the data; and

a two-way communication link.

7. The system for monitoring electrical power supplies according to claim 1, wherein said software is embedded in each said input module means and said central controller means; one of said input module means attached to each sensor and set for the voltage type and range in which it will be collecting data.

8. The system for monitoring electrical power supplies according to claim 7, wherein said data includes site-specific information, individual input module serial numbers, uninterruptible power supply or battery system model and serial number, start date, technician/installer

information, any other pertinent information, and a benchmark reading of each the battery's float level and possible discharge rate.

9. The system for monitoring electrical power supplies according to claim 1, wherein said software resides at the web site thereby providing: security from theft; reduced chance of hackers entering the network; one upgrade affects all sites; reduced customer support; reduced computer system requirements at the site; and a lower cost of installation and hardware for customers who have local PC and internet connection.

10. A method for continuously remotely monitoring the condition of electrical power supplies through hardware and software that resides locally at a customer's site, an Internet connection, a web site for customer access, data analysis, and an emergency communication link to the customer and field service provider:

a plurality of input module means each of which receives an analog voltage input from a respective power source being monitored, convert this signal to a digital format and send the digital signal to central control means which collects the data from each input module means then, at scheduled intervals, sends the collected data to a web server which contains primary software for the system;

said software performing data comparisons, charting trends, predicting failures, planning and scheduling service visits, archiving the data for future references, and providing near real time reports when a customer logs into the system to view up to date information.

11. An electrical battery monitoring method providing DC measurements in "near" real time providing up to the minute, continual measurements during the battery's three states, float, discharge, and recharge, said method comprising the steps of:

constantly measuring the respective batteries to provide measurement data to build a curve with enough resolution to "chart" the battery.

monitoring the system's battery charger;  
monitoring the temperature of individual batteries;  
monitoring ambient temperature;  
monitoring equipment load; and  
monitoring incoming electrical power from a commercial source.

12. A system for monitoring electrical power, which includes both electrical power from commercial electrical power utilities and battery operated electrical power backups, comprising  
a plurality of individual input module means each connected to a respective electrical power source and each receiving an analog voltage input indicative of the status of said electrical power supply and converting said analog signal to a digital signal;  
central controller means connected to collect said digital data from each input module means;

web server means containing primary system software capable of performing data comparisons, chart trends, predict failures, plan and schedule service visits, and archive data for future reference, and at scheduled intervals said web server means receiving said digital data from said central controller

13. The system for monitoring electrical power according to claim 12, wherein each said input module means comprises:

DC battery lead attachment means;  
AC input voltage power transformer means;

temperature thermistor means attached to each said DC battery; and  
current transformer means including AC and Hall effect DC.

14. The system for monitoring electrical power according to claim 12, further comprising:  
wiring harness means in each said input module means, each said wiring harness having  
one end attached to each battery and attached to an input module bus on the other end, the  
number of wires in a wiring harness consisting of one more wire than the number of batteries  
connected by said wiring harness.

15. The system for monitoring electrical power according to claim 14, further comprising:  
additional sensor means attached to said input modules through said wiring harness mean.

16. The system for monitoring electrical power supplies according to claim 12, wherein  
each said:

input module means measures DC battery voltage, DC charger/bus voltage, DC amperage  
at the DC bus, and both individual battery temperature and ambient temperatures, the different  
voltage ranges being programmed in said central controller software

17. The system for monitoring electrical power supplies according to claim 12, wherein  
each said:

input module means senses AC input voltage and ambient temperature, the voltage ranges  
programmed in said central controller software.

18. The system for monitoring electrical power supplies according to claim 12, wherein  
central controller comprises,

microprocessor means to collect digital data from said input modules, store and  
summarize said digital data, which includes: system data, power and battery measurements,

**date/time stamps, and input module information; and**

**two-way communication means with customers.**

**19. The system for monitoring electrical power supplies according to claim 12, wherein  
said software is embedded in the input module and central controller;**

**an input module attached to each sensor and set for the voltage type and range in which it  
will be collecting data;**

**20. The system for monitoring electrical power supplies according to claim 19, wherein  
said data includes site-specific information, individual input module serial numbers, site  
information, uninterrupted power supply or battery system model and serial number, start date,  
technician/installer information, any other pertinent information, a benchmark reading of the  
battery's float level and possible discharge rate.**

**21. The system for monitoring electrical power supplies according to claim 12, wherein  
said software resides at the web site thereby providing: security from theft; reduced chance of  
hackers entering the network; one upgrade affects all sites; reduced customer support; reduced  
computer system requirements at the site; and a lower cost of installation and hardware for  
customers who have local PC and Internet connection.**

**22. The system for monitoring electrical power supplies according to claim 12, wherein  
said software of said web server also provides near real time reports, regular monthly reports,  
and alarm notifications which can be sent via E-mail, telephone land lines, cell phone, PDA, or  
pager.**